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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,745	10/23/2003	Delmar Bleckley	PB400002	7748
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PHILIP H. BURRUS, IV			SELBY, GEVELL V	
460 GRANT STREET			ART UNIT	PAPER NUMBER
ATLANTA, GA 30312			2622	
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			08/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/691,745	BLECKLEY ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Gevell Selby	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 02 May 2007.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-5, 7-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5 and 7-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1- 5, 7, 8, and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898.**

In regard to claim 1, Cameron et al., US 6,565,448, discloses a system for measuring geometric relationships of components associated with a body in motion, comprising:

- a. a means for generating an electronic image having a shutter (see figure 1, elements 20, 22, 24, 26, and 28 and column 3, lines 13-62: it is implied the camera has a shutter in order to properly expose the image sensor);
- b. a triggering means coupled to the means for generating (see column 5, lines 21-24 and column 6, lines 14-21: training software trigger function);

- c. a computer means coupled to the means for generating, the computer means being capable of storing the electronic image (see figure 1, element 30 and column 2, line 64 to column 3, line 19);
- d. a software means running on the computer means (see column 6, lines 4-27), the software means being capable of measuring a geometric relationship between at least two elements of the electronic image (see column 6, line 55 to column 7, line 18 and column 10, line 51 to column 11, line 20).

The Cameron reference does not disclose a second shutter positioned between the means for generating and the body in motion.

Nakano, US 5,754,898, discloses a camera with a first shutter (see figure 1, element 11) and a second shutter (see figure 1, element 12) positioned between the imaging surface and the object being photographed (see column 5, lines 15-20) wherein the shutter has different capture rates (see column 3, lines 28-40 and column 9, lines 10-28).

It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, to have a second shutter positioned between the means for generating and the body in motion, in order to have shutters with different shutter speeds to capture different photographing portions or with either a high or low shutter speed, thus making the camera more versatile.

In regard to claim 2, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, discloses the system of claim of claim 1. The Cameron reference discloses

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wherein the body in motion comprises a person (see figure 7, element 10), and at least one of the at least two elements is a head (see column 10, line 51 to column 11, line 20).

In regard to claim 3, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, discloses the system of claim of claim 2. The Cameron reference discloses wherein the person is swinging a golf club, and at least one of the at least two elements is a club head (see column 10, lines 6-38) or a golf club shaft (see column 6, line 55 to column 7, line 18).

In regard to claim 4, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, discloses the system of claim 3. The Cameron reference does not disclose wherein the at least two elements comprise an arm leading a golf swing and the club shaft, further wherein the geometric relationship comprises an angle between the arm leading the golf swing and the club shaft.

However, the Cameron reference does disclose analyzing an image of the putter grip side view (figure 6) to determine whether the golfer's wrists are moving or "breaking down" by eyeing whether the club is face is dragging behind the golfer's hands (see column 9, lines 13-45). The Cameron reference also discloses an angle drawing function where the user draws two lines on the image corresponding to two elements in the image for which the computer will calculate the angle between, as the case of the example the element are the club shaft and the ground (see column 7, lines 7-18). The system can also automatically determine the desired angle by identifying the two elements in the image (see column 7, lines 57-67), in order to eliminate error when drawing the angle lines. It would have been obvious to one skill in the art that the angle drawing function

could be used when analyzing figure 6 to automatically calculate the angle between the golfer's leading arm and the club shaft to more accurately determine how much the golf club is behind the golfer's hands and allow the user to easily and quickly determine wrist breakdown.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Cameron et al., US 6,565,448, wherein the at least two elements comprise an arm leading a golf swing and the club shaft, further wherein the geometric relationship comprises an angle between the arm leading the golf swing and the club shaft, in order to automatically calculate the angle between the golfer's leading arm and the club shaft to more accurately determine how much the golf club is behind the golfer's hands and allow the user to easily and quickly determine wrist breakdown.

In regard to claim 5, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, discloses the system of claim of claim 1. The Cameron reference discloses wherein the means for generating comprises:

a. a video camera (see figure 1, element 22); and

b. a second shutter (see figure 1, element 26: it is inherent camera 21 has a first shutter and camera 26 has a second shutter);

wherein the triggering means actuates the second shutter (see column 5, lines 17-20 and column 10, lines 6-13: the trigger activates the shutter to capture the image).

In regard to claim 7, Cameron et al., US 6,565,448, discloses a system for measuring spatial relationships relative to a body in motion, comprising:

- a. a video camera having a shutter (see figure 1, element 26: it is implied the camera has a shutter in order to properly expose the image sensor), the video camera having an image capture rate (see column 10, lines 6-14: the image capture rate captures images before and after the contact of ball and club);
- c. a means for actuating the second shutter (see column 5, lines 21-24 and column 6, lines 14-21: training software trigger function); and
- d. a means for displaying a video image coupled to the video camera (see figure 1, element 32, figure 4, figure 7).

The Cameron reference does not disclose a second shutter positioned between the video camera and the body in motion, the second shutter having a shutter speed that is not equal to the image capture rate.

Nakano, US 5,754,898, discloses a camera with a first shutter (see figure 1, element 11) and a second shutter (see figure 1, element 12) positioned between the imaging surface and the object being photographed (see column 5, lines 15-20) wherein the shutters have different capture rates (see column 3, lines 28-40 and column 9, lines 10-28).

It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, to have a second shutter positioned between the video camera and the body in motion, the second shutter having a shutter speed that is not equal to the

image capture rate, in order to have shutters with different shutter speeds to capture different photographing portions or with either a high or low shutter speed, thus making the camera more versatile.

In regard to claim 8, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, discloses the system of claim 7. The Cameron reference discloses further comprising software means for making spatial measurements between at least two elements of the video image (see column 6, lines 4-27, column 6, line 55 to column 7, line 18 and column 10, line 51 to column 11, line 20).

In regard to claim 15, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, discloses the system of claim 14. The Cameron reference discloses wherein the means for actuating is positioned such that the second shutter is open while a golf ball is in contact with a clubface (see column 6, lines 55-64: the second shutter activates at the ball strike). The Cameron reference does not disclose further wherein the spatial measurement comprises an angle between the golfer's leading forearm and a club shaft. However, the Cameron reference does disclose analyzing an image of the putter grip side view (figure 6) to determine whether the golfer's wrists are moving or "breaking down" by eyeing whether the club is face is dragging behind the golfer's hands (see column 9, lines 13-45). The Cameron reference also discloses an angle drawing function where the user draws two lines on the image corresponding to two elements in the image for which the computer will calculate the angle between, as the case of the example the element are the club shaft and the ground (see column 7, lines 7-18). The system can also automatically determine the desired angle by identifying the two elements in the image

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(see column 7, lines 57-67), in order to eliminate error when drawing the angle lines. It would have been obvious to one skill in the art that the angle drawing function could be used when analyzing figure 6 to automatically calculate the angle between the golfer's leading arm and the club shaft to more accurately determine how much the golf club is behind the golfer's hands and allow the user to easily and quickly determine wrist breakdown.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Cameron et al., US 6,565,448, wherein the at least two elements comprise an arm leading a golf swing and the club shaft, further wherein the geometric relationship comprises an angle between the arm leading the golf swing and the club shaft, in order to automatically calculate the angle between the golfer's leading arm and the club shaft to more accurately determine how much the golf club is behind the golfer's hands and allow the user to easily and quickly determine wrist breakdown.

In regard to claim 16, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, discloses the system of claim 7. The Cameron reference discloses wherein the means for displaying comprises a computer, further wherein the software means comprises video imaging software that allows a user to create a graphic overlay atop the video image (see figures 4 and 7), and further allows the user to take angular or linear measurements between components of the graphic overlay (see column 6, lines 65 to column 7, line 18 and column 11, lines 51-61).

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In regard to claim 17 Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, discloses the system of claim 7. The Cameron reference discloses, wherein when the means for actuating actuates the second shutter (the shutter of camera 26 is read on as the second shutter since either shutter can interchangeably read on the second shutter of claim 7 while the other shutter reads on the first shutter), the second shutter opens at least a first (image capture before ball strike) and a second (image capture after the ball strike) times, with a predetermined time interval between the at least a first and the at least a second time, wherein the video camera generates at least a first and a second image (see column 10, lines 6-14).

In regard to claim 18, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, discloses the system of claim 7. The Cameron reference discloses further comprising a mechanical measurement device (see column 10, lines 59-61: the line function serves as a ruler to measure the distance the head moves).

In regard to claim 19, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, discloses the system of claim 7. The Cameron reference discloses wherein the spatial relationship is angles or position (see column 10, lines 6-61).

**4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, as applied to claim 8 above, and further in view of Bean et al., US 2003/0052989.**

In regard to claim 9, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, discloses the system of claim 8. The Cameron and Nakano references do not disclose wherein the second shutter is selected from the group consisting of mechanical

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shutters, electromechanical shutters, ferroelectric crystal shutters and liquid crystal display shutters.

Bean et al., US 2003/0052989, discloses a digital camera with plural shutters that are individually addressable and actuatable selected from electromechanical shutters (see para 29) or liquid crystal display shutters (see para. 17).

It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, and further in view of Bean et al., US 2003/0052989, to have the second shutter selected from the group consisting of mechanical shutters, electromechanical shutters, ferroelectric crystal shutters and liquid crystal display shutters, in order to capture or exclude an image in a certain portion of the image sensor to exclude a portion that might be too bright.

**5. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, as applied to claim 7 above, and further in view of Manwaring et al., US 6,929,558.**

In regard to claim 10, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, discloses the system of claim 7. The Cameron and Nakano references do not disclose wherein the means for actuating comprises a sensor selected from the group consisting of electromagnetic sensors, optical sensors, electronic sensors and acoustic sensors.

Manwaring et al., US 6,929,558, discloses a trigger device 30 that uses a laser transmitter and a receiver to trigger the camera during a golf swing (see column 6, lines 11-20).

It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, and further in view of Manwaring et al., US 6,929,558, to have the means for actuating comprises a sensor selected from the group consisting of electromagnetic sensors, optical sensors, electronic sensors and acoustic sensors, in order to automatically trigger the camera based on the motion of the golf club.

In regard to claim 11, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, and further in view of Manwaring et al., US 6,929,558, discloses the system of claim 10. The Manwaring reference discloses wherein the means for actuating comprises a luminous intensity detection region (see column 6, lines 14-17: the detection device has a laser detection section).

**6. Claims 12, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, and further in view of Manwaring et al., US 6,929,558, as applied to claim 11 above, and further in view of Weber et al., US 5,792,000.**

In regard to claim 12, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, and further in view of Manwaring et al., US 6,929,558, discloses the system of claim 11. The Cameron and Manwaring references do not disclose wherein the image capture rate is slower than the shutter speed.

Weber et al., US 5,792,000, discloses a golf swing analysis system wherein the image capture rate is slower than the shutter speed in lower lighting conditions and a strobe can be used to provide instantaneous illumination at the trigger point (see column 5, lines 56-60).

It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, and further in view of Manwaring et al., US 6,929,558, and further in view of Weber et al., US 5,792,000, to have a trigger activated strobe and wherein the image capture rate is slower than the shutter speed, in order to capture higher quality images in lower light conditions.

In regard to claim 13, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, and further in view of Manwaring et al., US 6,929,558, and further in view of Weber et al., US 5,792,000, discloses the system of claim 12. The Cameron reference discloses wherein the body in motion comprises a person executing a physical motion (see column 10, lines 6-13).

In regard to claim 14, Cameron et al., US 6,565,448, in view of Nakano, US 5,754,898, and further in view of Manwaring et al., US 6,929,558, and further in view of Weber et al., US 5,792,000, discloses the system of claim 13. The Cameron reference discloses wherein the body in motion comprises a golfer making a golf swing (see column 10, lines 6-13).

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gevell Selby whose telephone number is 571-272-7369. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on 571-272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

gvs



LIN YE  
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